

**Report on the sanitary condition of the City of London, for the year 1852-3 /  
by John Simon.**

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Simon, Sir John, 1816-1904.  
City of London (England). Health Department.  
Royal College of Surgeons of England

**Publication/Creation**

London : Printed by C. Dawson, 1853.

**Persistent URL**

<https://wellcomecollection.org/works/z2m3ad5b>

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# REPORT

ON

## THE SANITARY CONDITION

OF THE

## CITY OF LONDON,

FOR THE YEAR

1852-3,

BY

JOHN SIMON, Esq. F.R.S.,

MEDICAL OFFICER OF HEALTH TO THE CITY OF LONDON,

AND SURGEON TO ST. THOMAS'S HOSPITAL.

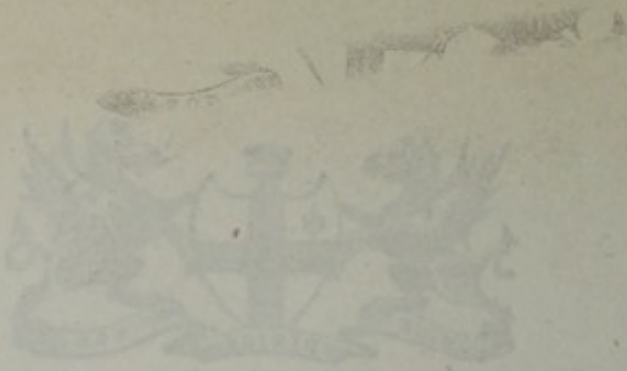
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by the  
AUTHOR.

LONDON:

PRINTED BY C. DAWSON, FENCHURCH STREET, CITY.

1853.



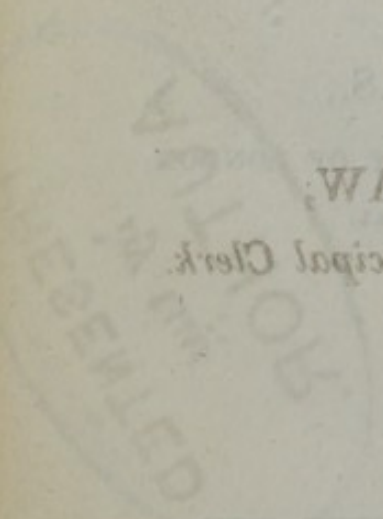
REPORT

At a Meeting of the Commissioners of Sewers  
of the City of London, held at the Guild-  
hall of the said City, on Tuesday, 23th of  
November, 1853:—

The Medical Officer of Health laid before the  
Court his Annual Report, which was ordered to be  
printed, and a copy to be sent to every member  
of this Court and the Court of Common Council.

JOHN SIMON, Esq. F.R.S.  
MEDICAL OFFICER OF HEALTH

Principal Clerk



LONDON:

PRINTED BY R. DAWSON, PINECOURT STREET, CITY.

1853.

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*At a Meeting of the Commissioners of Sewers  
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JOSEPH DAW,  
*Principal Clerk.*



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At a Meeting of the Commissioners of Sewers  
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THE  
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MR. SIMON'S FIFTH ANNUAL REPORT

To the Hon. the Commissioners of Sewers of  
the City of London.

Upper Grosvenor Street,  
Nov. 29th, 1853

GENTLEMEN,

According to the practice of previous years, I lay before you, in the annexed tables, a brief digest of your death-register for the fifty-two weeks which terminated at Michaelmas last.

The deaths there enumerated amount to 3040—being 24 fewer than in the last-preceding similar period.

Beyond these statistics of the past year, there are other facts which I have thought it well to tabulate for your information. They relate to the entire term of five years, during which I have kept record of your mortality. Midway in this quinquennial



THE  
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period—namely, in the spring of 1851, the general census happened to occur. The inhabitants of the City, then enumerated, may fairly be taken to represent the mean of your somewhat fluctuating population; and the five years mortality, compared with the numbers of this mean population, will express pretty accurately their habitual death-rate.

The period mentioned is indeed short for the purpose of establishing an average; but ten years at least must elapse before even similar materials can again be given for calculation, and a still longer time before the statistical basis can be enlarged. I have therefore thought it desirable to make the best use in my power of such facts as were before me, for the construction of quinquennial tables; out of which, with sufficient accuracy for all practical purposes, you may draw your own inferences as to the health of that large population which is under your sanitary government.

The facts are classified, as heretofore, in the manner which will most easily display their practical meaning. First, namely, the deaths of the period are recorded in their local distribution, so that you may compare one part of the City with another in respect of healthiness. Next, they are so tabulated according to ages, as to indicate the prevailing proportion of untimely death. Thirdly, those of them are separately enumerated which, in their several classes, chiefly occur as results of acute disease in connexion with removable causes.



In after years, when sanitary improvements, now only in contemplation or commencement, shall have produced their legitimate results and rewards, these tables may serve an important use. Indicating the standard of public health within the City before such works were achieved, and constituting a permanent record of your starting-point, they will qualify your successors to estimate the amount of amelioration which your endeavours shall have produced.

The details of your present sanitary condition, as varying in different sub-districts of the City, and as fluctuating in the several years and seasons of the quinquennial period, are expressed in the figures of these tables more compendiously and more clearly than I could hope to convey them in words. Here, therefore, I restrict myself to telling you very briefly their general results.

The population of the City—about 130,000 persons, has been dying during these five years at the rate of about 24 *per* thousand *per* annum. The sub-district rates which give this aggregate vary from under 18 to above 29; the former death-rate belonging to your healthiest locality—the north-west sub-district of the City of London Union; while the latter—more than 60 *per cent* higher—mortality belongs to the north sub-district of the West London Union. The lowest death-rate hitherto attained in this country for a considerable population, during a term of seven years, has been



14 *per* thousand *per* annum; which your worst sub-district mortality more than doubles.

As different districts contribute unequally to your average death-rate, so also do different ages. Among all the population exceeding five years of age, the death-rate is under 17 *per* thousand *per* annum; while for children under five years of age the rate is nearly 85. And these rates are unequally constituted by your three chief districts in the following proportion; viz.—

Annual Rate of Deaths to 1000 living persons.	Over 5 Years of age.	Under 5 Years of age.
East London Union . . . . .	16.68	91.99
West London Union . . . . .	20.58	94.84
City of London Union . . . . .	15.06	71.72
Average death-rate in the City	16.85	84.72

How various are the diseases which have conspired to produce your annual average of 3120 deaths, it would be tedious to describe; and in the table which I have devoted to a partial analysis of this subject, I have restricted myself to a consideration of those ailments which are likely to become less fatal under a well-developed sanitary system. To the annual average typhus has contributed 140 deaths; choleraic affections (including the epidemic of 1849) 196; scarlet fever, 76; small-pox, 40; erysipelas, 30; the acute nervous and mucous diseases of children, 572; their measles, hooping-



cough and croup, 182 ;—making, from this class of disorders, an annual average of about 1250 deaths—nearly two-fifths of the entire mortality.

My tables will show you that the different seasons of the year have pressed somewhat differently on human life; and there is exhibited in them a point of some interest, to which I would beg your attention. In your healthier sub-districts it is easy to perceive the influence—the almost inevitable influence, exerted by the inclemency of winter against the aged and feeble. In your unhealthier sub-districts, this effect is completely masked, and summer becomes the fatal season; its higher temperature acting in some sort as a test of defective sanitary conditions, and giving to the several local causes of endemic disease an augmentation of activity and virulence.

On the facts which these tables set forth, I have nothing further to say than would consist in a repetition of arguments already submitted to your notice. In my third annual report, especially, I endeavoured to lay before you the conclusions which are fairly deducible from the proportions of early death, and from the partial allotment of particular diseases.

These conditions, indeed, are in obvious mutual relation. To human life there has been affixed a normal range of duration; and when it prematurely fails—when children perish in the cradle, or adults amid the glow of manhood, the exception in every case is a thing to be investigated and explained.



Of the 15,597 persons who have died within your jurisdiction, not an eighth part had reached the traditional "three score years and ten;" while nearly three-eighths died in the first five years of life. In proportion as facts like these appear in the death-tables of a particular district, in the same proportion we can trace the local prevalence of particular diseases, to explain the abridgment of life; and passing from such a locality to other districts, where the natural term of existence is more nearly attained, invariably we find that these diseases have fallen into comparative inertness. Finally, in grouping the fatal results of such diseases in their proportionate geographical allotment, invariably we find that their prevalence or non-prevalence, here or there, has been associated with demonstrable physical differences; that life has not capriciously been long in one place and short in another, but that, where short, it has been shortened; that its untimely extinction has depended on the direct operation of local and preventable causes.

In this recognition of cause and effect, which the experience of late years has rendered vivid and precise; and in that higher appreciation of human life, which belongs to civilised nations in peaceful times; and in that deeper sympathy for the suffering poor, which should be at the heart of every Christian government, sanitary legislation had its origin in this country; and it has been the good fortune of the City of London (in respect of your



two Acts of Parliament) to precede the rest of the metropolis in acquiring and exercising authority for the mitigation of preventable disease.

Nearly five years have now passed over your tenure of this very grave responsibility; and although in many respects the period must be regarded as one of apprenticeship to a new and difficult career—although you have hardly yet arrived at what may permanently represent your method of action—although important changes which you have determined to adopt are not yet in actual working—although the far greatest evils still remain for correction—yet I rejoice to inform you that sensible improvement has already shown itself in the sanitary state of your population. My comparison of the past five years with any considerable previous period cannot be as precise as I would wish, owing to the absence of circumstantial records for the time anterior to my appointment; but, judging from such information as I can consult on the subject, I am induced to believe that the deaths, for equal numbers of population, are about 4 *per cent* fewer than before your Acts of Parliament came into operation, and that the disproportionate mortality of children is decidedly lessened.

On this first improvement—the beginning, I would fain hope, of a long series of similar steps for regaining the allotted duration of human life, I beg to offer my respectful congratulations to your Honourable Court, under whose auspices it has



been effected. Further impetus in the same direction will shortly be given by the removal of sanitary evils, already in fact or in principle condemned. The approaching institution of your extramural cemetery and—I venture to hope, the translation of all slaughtering establishments to the site of your new Smithfield, will be important contributions to this effect. I therefore make bold to speak with some sanguineness of the slight change of death-rate already noticed ; though, while so much remains to be accomplished, I doubt not you will welcome the amelioration rather as an encouragement to proceed, than as the final reward of a completed task.

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Here, Gentlemen, terminates all that I have to submit for your consideration in respect of your past and present record of deaths. The greater extension which during the last two years I have given to my habitual weekly reports, and to sundry occasional statements which it has been my duty to lay before you, may seem, at least generally, to render it superfluous for my annual report to contain anything beyond such statistical particulars as I have now brought under your notice. But, however this may generally be, there exist exceptional circumstances at the present time which induce me to trouble you at somewhat greater length.

II. Two years ago—adverting to the non-completion of metropolitan sanitary works, on which the



health of entire London is vitally dependent, I could not but comment\* on the utter unpreparedness with which the metropolis was awaiting any sudden return of Asiatic cholera. It was indeed impossible to foresee how soon, or how late, that dreadful visitation might recur to desolate our homes—whether it might return at once, or never. But typhus—averaging in fifteen years double the fatality of that rarer epidemic, was adding day by day to its list of preventable deaths; and other endemic diseases were co-operating with it, demonstrably, uninterruptedly, to decimate, impoverish and abase the people.

Whatever doubts might have existed as to a return of the foreign pestilence were soon solved: whatever hasty conclusions had been formed, as to its again remaining absent during half a generation, were soon disappointed and reversed. Even while I was addressing you on the subject, the plague had again kindled its smouldering fire, and was widening its circle of destruction. Perhaps from the eastern centres of its habitual dominion—from the alluvial swamps and malarious jungles of Asia, where it was first engendered amid miasmas of vaporious poison, and still broods over wasted nations as an agent of innumerable death; or perhaps from the congenial flats of Eastern Europe, where it may have lingered latent and acclimatised; the subtle ferment

\* Third Annual Report, p. 40.



was spreading its new infection to all kindred soils. Repelled again from the dry and airy acclivities of the earth, and their hardier population, it filtered along the blending-line of land and water—the shore, the river-bank and the marsh. Conducted by the Oder and Vistula from the swamps of Poland to the ports of the Baltic, it raged east and west, from St. Petersburg to Copenhagen, with frightful severity, and obedient to old precedents has let us witness its arrival at Hamburg.

Twice in the European history of Cholera, had this town seemed the immediate channel of epidemic communication to our island; the disease having on each occasion commenced in our north-eastern sea-ports within a very short time of its outburst there. A third time, not unexpectedly, has this dreadful guest, following the line of former visitation, touched upon the banks of the Tyne; where a worse than beastly condition of the crowded poor, and sewage-water diluted through the people's drink, had prepared it an appropriate welcome.

Next the disease was rumoured to be in London. Hope and belief are too near akin for this not to have been doubted and denied; but the last few weeks have shown, with sad incontrovertible certainty, that after only four years absence, Cholera has again obtained its footing on our soil. Six or seven hundred deaths, registered in the metropolis since the beginning of September, have already attested its presence.



Anxiously adverting to the future, and asking what may be the onward progress of the disease, we can appeal only to a narrow experience. Before us lie the records of only two complete visitations of the disease, and the commencement of this the third. It would be a shallow philosophy that should pretend, from two observations, to predict the possible orbit of this obscurely wandering plague.

Yet I dare not disguise from you that such knowledge as we have, to justify scientific anticipation, is pregnant with threats and gloom. For—let me remind you of the past. At each former period of attack, the infection, after a certain course over Continental Europe, struck upon our eastern coast in the summer of an unforgotten year. In the northern parts of Great Britain, so soon as it had lit among the population, each time it burst forth into explosive activity, and worked its full measure of destruction without delay. More faintly it reached the South. On each occasion, indeed, at the close of summer, London was sensibly affected by the disease; but, we hoped, under a milder infliction. Here and there, within its Bills of Mortality (as at Tooting in 1848) there was thrown some astounding flash on a particular hot-bed of co-operating poison; but on the whole it seemed to the sanguine, on each occasion, that the fury of the epidemic was expending itself in our northern towns, and that the metropolis was to be comparatively spared.



Each time, at the commencement of the new year, our London mortality from Cholera seemed stationary within the limit of a few hundred deaths. Each time winter and spring allowed a long time to our invaded City, and confirmed the omens of the hopeful.

But each time there was disappointment. Each time, as the warmth of summer requickered the exterior conditions of chemical activity, the dormant fire kindled afresh—slowly at first, but with speedy acceleration of rate. Each time, in the few weeks before Michaelmas—amid almost universal threatenings of the disease, and amid such panic of death as the metropolis had not known since the Great Plague, there suddenly fell many thousands of the population.

Thus then our position stands. Scientific prediction of phenomena can arise only in the knowledge of laws. That the phenomena of the disease, however capricious they may seem, are obedient to some absolute uniformity as yet beyond our ken—are enchained by that same rigid sequence of cause and effect which is imposed on all remaining Nature, it would be impossible to doubt. But these conditions are hitherto unknown to science. Hitherto we can speak of the facts alone, with a short empirical knowledge of their succession. Yet in this light, such as it is, the conclusion is only too obvious. If the disease, already notorious for a tendency to return on its former vestiges, repeat on



this third occasion the steps of its two previous courses; or, perhaps I should rather say, if it now proceed consistently to complete a repetition which it has already half-effected; Asiatic Cholera will be severely epidemic in London in the third quarter of next year—will proceed, with a stern unflattering test, to measure the degree in which those promises of sanitary improvement have been redeemed, which the terror of its recent visitation extorted even from the supinest and most ignorant of its witnesses.

In the face of so great a danger, you will reasonably claim of your Officer of Health that he shall report to you, how far the City is already fortified against this dreadful invasion—how far the hygienic defences of life, if weak, may be strengthened—how far there remain breaches now insusceptible of repair.

1. It forms an all-important part of these considerations for resistance to the disease, to recognise quite accurately what is its fashion of attack. Since I last addressed you on the subject, in my Report for 1849-50, the materials for correct generalisation have been very largely increased by Mr. Farr's admirable Report to the Registrar-General on the Cholera in England, and by numerous other important publications. By collating with these works the more restricted, yet not unimportant, experience which arose within your particular jurisdiction, I hope to have enlarged my knowledge of the subject, and to have become able with greater confidence to submit my conclusions for your acceptance.



The first and most obvious characteristic of the disease is its preference for particular localities. It is eminently a district-disease. And the conditions which determine its local settlement are demonstrable physical peculiarities.

After carefully reviewing the subject, I do not know that I need qualify, except to express more confidently, the account I formerly gave you of those peculiarities, as consisting in the conjunction of dampness with organic decomposition.

It is in respect of these conditions—especially among dense urban populations, that the level of occupied ground, relatively to the nearest water-surface, becomes of primary importance. The low level, in itself, or rather in respect of the watery dampness which it implies, is not enough to localise the pestilence. To be afloat at sea might be the safest lodging.

The sub-district of St. Peter's, Hammersmith, averages only four feet above high water level; that of St. Olave's, Southwark, two feet higher; yet among the former and worse placed of these two populations, the Cholera-mortality was only 18 per 10,000; while among the latter and better placed it rose to 196—multiplying nearly eleven times the minor phenomena of a lower level. So also within your own jurisdiction. Side by side along the river lie four of your sub-districts; three at the elevation of twenty-one feet, one at the elevation of twenty-four feet. The Cholera-mortality, if simply proportioned to level, should have been nearly the



same for these four sub-districts, and somewhat less in the last one than in the first three. But contrary was the fact; for in two of these sub-districts the Cholera-mortality, for equal numbers of population, was  $4\frac{1}{2}$  times as great as in the other two.

It would therefore appear that in certain low-lying levels—to constitute them favourable soils for the disease, there must be joined to their first condition of lowness (with the mere watery dampness which it implies) some other and second condition; one, which is of extreme frequency in such districts, though not essentially present there.

This second condition impends wherever there dwells at such levels a certain density of population; it mainly varies with the degree in which that dense population lives in the atmosphere of its own excrements and refuse. In this respect I cannot refrain from saying, that the giant error of London is its present system of drainage. Probably in considerable parts of the metropolitan area, house-drainage is extensively absent: probably in considerable parts, the sewers, from the nature of their construction, are very doubtful advantages to the districts they traverse: but the evil before all others, to which I attach importance in relation to the present subject, is that habitual empoisonment of soil and air which is inseparable from our tidal drainage. From this influence, I doubt not, a large proportion of the metropolis has derived its liability to Cholera. A moment's reflection is sufficient to



show the immense distribution of putrefactive dampness which belongs to this vicious system. There is implied in it that the entire excrementation of the metropolis (with exception of such as, not less poisonously, lies pent beneath houses) shall sooner or later be mingled in the stream of the river, there to be rolled backward and forward amid the population; that, at low water, for many hours, this material shall be trickling over broad belts of spongy bank which then dry their contaminated mud in the sunshine, exhaling fœtor and poison; that at high water, for many hours, it shall be retained\* or driven back within all low-level sewers and house-drains, soaking far and wide into the soil, or leaving putrescent deposit along miles of underground brickwork, as on a deeper pavement. Sewers which, under better circumstances, should be benefactions and appliances for health in their several districts, are thus rendered inevitable sources of evil. During a large proportion of their time, they are occupied in retaining or re-distributing that which it is their office to remove. They furnish chambers for an immense fœcal evaporation; at every breeze which strikes against their open mouths, at every tide which encroaches on their inward space, their gases are breathed into

\* I am informed that in large districts on the south side of the river, this retention of sewage is prolonged for two-thirds of every tide—sixteen hours out of every twenty-four.



the upper air—wherever outlet exists, into houses, foot-paths, and carriage-way.

To you, Gentlemen, as Commissioners of Sewers for the City of London, these remarks may seem superfluous; the rather so, as the worst evils of tidal drainage are not largely exemplified within your jurisdiction. But it seems to me of extreme moment at the present time, when very costly improvements of the metropolitan drainage are about to undergo parliamentary discussion, that the public should be well aware how indispensable such improvements are for the general health of London, and how important in fact they are to thousands who at first sight might think themselves little interested in their completion.

To some individual house-holder, dwelling at a high level, all concern in the subject may seem to terminate with the defluxion of his own sewage. So that his own pipes remain clear, little cares he for the ultimate outfall of his nuisance! Perhaps, if he knew better, he would care more. His gift returns to him with increase. Down in the valley, whither his refuse runs, converge innumerable kindred contributions. From city and suburb—from an area of 100 square miles covered by a quarter of a million houses, with their unprecedented throng of metropolitan life, there pours into that single channel every conceivable excrement, out-scouring, garbage and refuse, from man and beast, street and slum, shamble and factory, market and



hospital. From the polluted bosom of the river steam up, incessantly though unseen, the vapours of a retributive poison; densest and most destructive, no doubt, along the sodden banks and stinking sewers of lowest level; but spreading over miles of land—sometimes rolled high by wind, sometimes blended low with mist, and baneful, even to their margin that curls over distant fields. For, not alone in Rotherhithe and Newington—not alone along the Effra or the Fleet, are traced the evils of this great miasm. The deepest shadows of the cloud lie here; but its outskirts darken the distance. A fever hardly to be accounted for, an infantile sickness of undue malignity, a doctor's injunction for change of air, may at times suggest to the dweller in our healthiest suburbs, that while draining his refuse to the Thames, he receives for requital some partial workings of the gigantic poison-bed which he has contributed to maintain.

The subject of these remoter effects I refrain from pursuing, as foreign to my present purpose. That on which I wish to insist is the character of the river, in its relation to the marginal sub-districts which it habitually dampens and occasionally floods with putrescent soakage, and in its relation to the sewers of low gradient which it converts (often with their adjoining soil) into the similitude and hurtfulness of cesspools. I wish emphatically to point out, that the several parts of London have suffered, and are likely again to suffer, from Cholera, in proportion



as either this malarious influence is exerted on them, or other kindred miasms are furnished by their soil. And it is my belief, from such evidence as is before me, that the general liability of London to suffer the epidemic visitation will cease, whenever an efficient and inodorous system of drainage, conveying all refuse of the metropolis beyond range of its atmosphere, shall be substituted for our present elaborate disguise of an unremoved nuisance. I deem it right to state this explicitly: not only because it is my duty to give you, in simple truth, the conclusions to which I am led by careful reflexion on the facts; but likewise because—for the credit of sanitary medicine and for your justification in the awful presence of a recurrent pestilence within your jurisdiction, it ought to be thoroughly known, how much of the cause is common to the entire metropolis, and has not admitted of removal by measures of partial improvement. And the circumstances will perhaps excuse me if I repeat to your Honourable Court—represented as you are both in the Metropolitan Commission of Sewers and in Parliament, where this question must shortly be discussed, that the universal reform of our metropolitan drainage, at whatever imaginable pecuniary cost, is an urgent claim and necessity, unless this great city is again, as two centuries ago, to live under the constant alarm of increasing epidemic destruction.

Reverting, however, to the more especial relations of the disease within your territory, you will



remember that, among your four bank-side sub-districts, two suffered in marked excess; their cholera-mortality having been  $4\frac{1}{2}$  times as great as that of the other two. The fact is instructive; because those two suffering sub-districts (though not of lower mean level than the others) were marginal to the valley of the Fleet, and were therefore exposed, more than any other part of your province, to the class of evils I have described. For a considerable part of this locality may be regarded as but recently\* a creek of the Thames; its shelving banks, singularly foul from ancient misuse, though now built over and paved, undergo in their lower levels very considerable soakage; while those vast sewers which lie in the mid-channel of the former river, are more liable than any within your jurisdiction, to suffer injurious interference from the action of the tide. At every such interference, and at every current of air setting up the sewers, all gases generated in these large chambers would diffuse themselves, not only in the low level, but likewise widely east and west, up those important slopes which depend on this valley for their drainage. I can easily understand that the radical cure of this district may be possible only as a part of those metropolitan improvements to which I have adverted; but I do think it of

\* New Bridge Street was built over the Fleet in 1765. The present site of Farringdon Street had been arched in thirty years earlier, for the purposes of the Fleet Market.



supreme importance, in reference to any such visitation as we dread, that, during the next twelve months, there should be taken every precaution which technical knowledge can suggest, for restricting, even by palliative and temporary expedients, those mischievous effects which I have endeavoured to illustrate.

In describing to you the local affinities of cholera, I have intimated that, in its preference for our low metropolitan levels, it selects these soils specifically in respect of their being damp with organic putrefaction. A moment's consideration will suffice to show that, if this be true, the higher levels of the metropolis will be exempt from the disease, only in proportion as they exempt themselves from the local conditions which invite it—only in proportion as they avail themselves of those natural advantages which their situation enables them to command. Let a district be defective in house-drainage, so that its soil is excavated by cesspools and sodden by their soakage; let its sewers be ill-constructed and foul, so that offensive gases are ventilated into the immediate breathing-air of the inhabitants; let its pavement be absent or imperfect, scattered with refuse and puddled with water;—you will easily conceive that, under these circumstances, all distinctions of level are merged in the strong identity of filth, and whatever diseases belong to putrefactive dampness of soil will strike here as readily as on the low-lying mud-banks of the river.



So, likewise, in still narrower limits—the predisposition of a house to Cholera may be stated in the same terms as define the liability of a district, viz. that the humid gases of organic decomposition, in proportion as they are breathed into one house in a district more than into other houses there, will engender the greater liability of that house, as compared with its collaterals, to suffer an invasion of Cholera. And thus it often happens, during epidemic prevalence of the disease, that sporadic cases are determined in localities which might generally claim to be free from infection: for, what avails it to be on the highest ground and the best soil, with every neighbouring facility of sewers and scavenging, if, owing to individual carelessness and filth, the conditions of dampness and putridity are by choice retained within a house, and its basement flooded with rotting liquids, or piled with accumulated refuse?

I might give you many instances in illustration of these points—showing you how, under the operation of specific sanitary faults, the Cholera-mortality of districts acquires an artificial exaltation: but few comparisons will suffice. At the period of the epidemic of 1849, your best conditioned sub-district was the north-west of the City of London Union; and (among those of the same level) your worst was the sub-district of Cripplegate, which at that time was in a very unsatisfactory state, abounding with open cesspools and their consequences. In



the former of these sub-districts the cholera mortality *per* 10,000 was 19; in the latter 47: and it is easy to show that additional sanitary errors soon develop a larger fatality. Not far from your boundary, at the same level with these two sub-districts, in the Hackney-Road division of Bethnal-Green, it rose to 110; this large mortality being principally confined to a very small portion of the district, wherein (the local Registrar reports) sewers were almost entirely absent, houses were contaminated with the filth of years, streets were remaining for days uncleaned from accumulating dirt, and all waste water (including animal secretions) were uniformly thrown into the public way.

Such are the conditions under which, at any imaginable height in the metropolis, Cholera may decimate a population: such, in their worst form, were the conditions which at Merthyr-Tydvil—several hundred feet above the water-level, carried the cholera-mortality to more than double the high metropolitan rate just mentioned. Taught by this case the power of human mismanagement to futilise the favours of Nature; taught, that perverse ingenuity can construct poison-beds for the development of Cholera, high above the usual track of its devastation, one gladly turns from the horrible instructiveness of such a lesson, to gather the kindred evidence of contrast; and happily there is abundant evidence to show, how much may be effected, even in the most tainted districts, to



purchase a circumscribed exemption from the disease by the judicious application of sanitary care.

In the remarks which I have made on the local distribution of Cholera, you will have observed that I dwell particularly on one class of sanitary evils as concerned in its production ; on that class, namely, which consists in the retention and soakage of organic refuse—on that class, which has its appointed antidote in a system of inodorous drainage, of uninterrupted pavement, of complete and punctual scavenging.

On this I particularly insist, because I believe that here is the very atmosphere without which Cholera would cease.

Sanitary evils abound; and, if I were speaking of other diseases I might have more to say of other causes. I am unwilling, even for a moment, to seem indifferent to those remaining fertile sources of suffering that surround the poor of our metropolitan population—to their over-crowded condition, to their scantiness of ventilation, to their insufficient or disgusting water-supply, to their frequent personal dirt, to their habitually defective diet. These several influences have their own characteristic sequels and retribution, on which I have often addressed you, and which I am little likely to underrate; believing as I do, that the aggregate of their effects in the lapse of years, is far more fatal than any periodical epidemic visitation. Likewise, I cannot doubt that, under certain circum-



stances, and in respect of particular cases, they may assist the operation of the choleraic poison. Nor will I pretend so exactly to limit the affinities of that which evolves this poison, as to deny that rooms, fœtid with animal exhalations, may (like cesspool-sodden cellars) be ready to answer the stimulus of its infection. And at any rate, I think it highly important to recognise that all sanitary defects which embarrass the excretive purification of the human body—whether by breathing or otherwise, do naturally tend in the same direction as the causes of Cholera, and are liable—if only by indirect means, to become accessory in its destructive work.

But, deeply impressed as I am with the importance of these considerations, I esteem it of still higher consequence, if measures are ever to be taken for an effective prevention of the disease, that the principle of its *specific causation* should be steadfastly kept in view. What may be the exact chemistry of this process, I do not pretend to say: urging only, that, in all human probability, the poison arises in specific changes impressed by some migratory agent upon certain refuse elements of life. Perhaps nowhere, and certainly not before your Honourable Court, can it be desirable, in the present immaturity of pathological knowledge, to argue as to the first origin or absolute nature of that wandering influence which determines in particular localities the generation of epidemic malaria. Simply—since it leads to all-important practical



conclusions, let this distinction be recognised: that which seems to have come to us from the East is not itself a poison; so much as it is a test and touchstone of poison. Whatever in its nature it may be, this at least we know of its operation. Past millions of scattered population it moves innocuous. Through the unpolluted atmosphere of cleanly districts, it migrates silently, without a blow; that which it can kindle into poison, lies not there. To the foul, damp breath of low-lying cities it comes like a spark to powder. Here is contained that which it can swiftly make destructive,—soaked into soil, stagnant in water, griming the pavement, tainting the air—the slow rottenness of unremoved excrement, to which the first contact of this foreign ferment brings the occasion of changing into new and more deadly combinations.

These are matters which it is hateful to hear, and, believe me, to speak about. But the thing is worse than the statement; and I would suggest to you this easy test of its reality. Take at random any consecutive hundred entries of Cholera-Deaths in the Registrar-General's metropolitan returns, where local conditions are described; and let any man decide for himself, whether what I have sketched in general terms convey more than the essential features of these several records. In 1849, such an atmosphere as these influences engender existed continuously and intensely on the low-lying south side of the river, and to some distance inland, from



Greenwich to Wandsworth; it existed also continuously, but in far less intensity, and with comparatively little extension inland, along the northern side of the river from Poplar to Chelsea; and it existed very intensely in several independent centres, scattered about those healthier levels of the metropolis, which, by their better position, ought to have been exempted from such a reproach. The Cholera struck in the same proportion as this atmosphere prevailed; and herein, I repeat, lies that definite local condition, except for which—to the best of my knowledge and belief, the migratory ferment (whatever it may be) would pass harmlessly through the midst of us.

For, towards the chemical constitution of local atmospheres, it seems that the several principles of epidemic diseases stand in the same sort of fixed respective relations, as do the several principles of infective fevers towards certain elements in the blood of individual persons. Just as the infective ferment acts on man, so appears the epidemic ferment to act on locality. We know that, in a given group of human beings, small-pox chooses one victim, scarlatina another, measles a third, by reason of some material quality in each person respectively, which his blood possesses, and which his neighbour's does not possess. By virtue of this quality—not the less chemical because chemists have no name for it, that specific exterior agency,



which we call infection, has the power of affecting each such person—has the power of producing in him a succession of characteristic chemical changes which tend to an eventual close by exhausting this material which feeds them.

Strictly analogous to this, in its principle of choice and in its method of operation, appears the epidemic action—not on persons indeed, but on places. The specific migrating power—whatever its nature, has the faculty of infecting districts in a manner detrimental to life, only when their atmosphere is fraught with certain products susceptible, under its influence, of undergoing poisonous transformation.

These products, it is true, are but imperfectly known to us. Under the vague name of putrefaction we include all those thousand-fold possibilities of new combination, to which organic matters are exposed in their gradual declension from life. The birth of one such combination rather than another is the postulate for an epidemic poison.

Whether the ferment, which induces this particular change in certain elements of our atmosphere, may ever be some accident of local origin, or must always be the creeping infection from similar atmospheres elsewhere similarly affected; whether the first impulse, here or there, be given by this agency or by that—by heat, by magnetism, by planets or meteors—such questions are widely irrelevant to the purpose for which I have the honor of ad-



dressing you. The one great pathological fact, which I have sought to bring into prominence for your knowledge and application, is this:—that the epidemic prevalence of Cholera does not arise in some new cloud of venom, floating above reach and control, high over successive lands, and raining down upon them without difference its prepared distillation of death; but that—so far as scientific analysis can decide, it depends on one occasional phase of an influence which is always about us—on one change of materials which in their other changes give rise to other ills; that these materials, so perilously prone to explode into one or other breath of epidemic pestilence, are the dense exhalations of animal uncleanness which infect, in varying proportion, the entire area of our metropolis; and that, from the nature of the case, it must remain optional with those who witness the dreadful infliction, whether they will indolently acquiesce in their continued and increasing liabilities to a degrading calamity, or will employ the requisite skill, science, and energy, to remove from before their thresholds these filthy sources of misfortune.

2. If, gentlemen, I have detained you long in stating conclusions as to the habits of the disease, and as to the significance of its local partialities, it has been in order to render quite obvious to you the intention of those precautionary measures which it is now my duty to recommend.



First, I would allude to influences of an exterior and public kind; and here, all that I have to advocate might be included in a single stipulation, that cleanliness—in the widest sense of the word, should be enforced to the full extent of your authority.

Over the pollutions of the river, and over the tidal exposure of its malarious banks, you have no power.

Whether for the relief of your low-lying districts—subject to imminent risk from causes I have described, there can be found any temporary protection to save their atmosphere from contamination, is a question which you will resolve upon other judgment than mine.

Along the river-bank there is one especial source of nuisance which has repeatedly been under your notice, and which is likely to become of serious local import under the presence of epidemic disease. I refer to the docks, and chiefly to that of Whitefriars. I mention it particularly, not only because the accumulations of putrid matter there have often been alarmingly great, but likewise because, at the head of this dock, during the former invasion of Cholera, there was remarkable prevalence of the disease; and I can well remember how often the offensive condition of the dock was accused, not unjustly, of contributing to the mortality of the neighbourhood. The fœtid materials, floated into these several recesses of the river, and left stranded



there by the receding tide, are often so copious as to produce very objectionable effects on the atmosphere which surrounds them; and I would beg leave strongly to urge that such sources of nuisance should be thoroughly and permanently removed.

Further—from what I have said as to the conditions of our vulnerability by Cholera, you will be prepared to think it of great importance that, during the next six months, you should be certified on the state of your sewers, in every part of the City, as to their greatest possible cleanliness and least possible offensiveness of ventilation. Fifty miles of sewer, reticulated through the City, sufficiently attest your active desire to provide for the complete and continuous carrying away of all excremental matters: and you will excuse me, I hope, in consideration of the anxieties of my office, if I seem superfluously cautious in reminding you that the test of successful sewers lies in an inodorous fulfilment of their duty, and that every complaint of offensive emanations indicates, in proportion to its extent, a failure of that sanitary object for which the construction was designed.

There is one precaution—always of great value to the health of towns, and especially useful against any malarious infection, which happily I find it needless to recommend. The paving of all public way within the City—including every court and alley, is already so complete as to constitute a very favorable point in your sanitary defences. In order



that this excellent arrangement may give its full fruit, it will be requisite—though this again I need hardly press on your consideration, that the duties of scavengers and dustmen be thoroughly and punctually performed.

Again, I would particularly advise that great vigilance be exercised in all markets, slaughtering-places, and other establishments under your jurisdiction, to prevent the retention of refuse matter, animal or vegetable. I would urge the strictest enforcement of all regulations which you have made for the cleanliness of such places, and for the removal of their putrefiable refuse.

Likewise, I have to suggest that after the month of May, at latest, no disturbance of earth to any considerable depth should be allowed to take place, either in your works or in those of gas and water companies, except under circumstances of urgent necessity. In the lower levels of the City, particularly, I conceive this prohibition to be a matter of paramount importance; because the soil, never of unexceptionable cleanliness in towns, is here especially apt to be of offensive quality.

On the subject of water in its general relations to the City, I have only again to express my deep regret that it lies out of your present power to compel a continuous supply, and that your means are restricted to choosing what may best compensate for the absence of this sanitary boon. It must be your aim to mitigate, so far as may be, the evils



that belong to an ill-regulated intermittent system in its adaptation to the houses of the poor—evils which imply, as I have often told you, not only much domestic dirt, but likewise a frequent suspension of all efficiency in the drainage of innumerable houses. With a view to the best alternative for a continuous supply, I would recommend that at least a daily filling of all cisternage take place, and expressly that Sunday form no exception to the advantages of this rule. If a choice of evils must be made, I trust it is no heathen's part to urge that the Christian Sabbath suffers more desecration in the filth and preventable unwholesomeness of many thousand households, than in the honest industry of a dozen turncocks. I likewise submit, that it would be highly advantageous to the labouring poor, most of whose domestic cleansing is reserved for the last day of the week, that, on that day, a second delivery of water should take place at some hour in the afternoon.

I wish it were in my power to tell your Honourable Court that the supply of water to the City of London had become, in quality, all that I think it might be rendered. Such as it is, however, there depend other very important issues on its being delivered in ample abundance for all the purposes of cleanliness ; and I am glad to have learned from the eminent engineer of the New River Company, that he has it in expectation very shortly to be able



to furnish to the City a largely increased and practically inexhaustible supply.

The subject of water in its district relations ought hardly to be passed without a word of caution as to the use of pumps within the City. I need hardly inform you that every spring of water represents the drainage of a certain surface or thickness of soil, and that—such as are the qualities of this gathering-ground, such must be the qualities of the water. You will, perhaps, remember that in my account of one celebrated City pump, which sucks from beneath a churchyard, I showed you ninety grains of solid matter in every gallon of its water. In virtue of that wonderful action which earth exerts on organic matter, the former contents of a coffin, here re-appearing in a spring, had undergone so complete a change as to be insusceptible of further putrefaction: the grateful coolness, so much admired in the produce of that popular pump, chiefly depending on a proportion of nitre, which has arisen in the chemical transformation of human remains, and which being dissolved in the water, gives it, I believe, some refrigerant taste and slight diuretic action. Undoubtedly this water is an objectionable beverage in respect of its several saline ingredients; but my present object in adverting to them is rather to illustrate an anterior danger which they imply. Their presence indicates a comparative completion of the putrefactive process, effected by the uniform



filtration of organic solutions through a porous soil.\* Let that soil have frequent fissures in its substance; or let its thickness be scanty in proportion to the organic matters to be acted on; and the water, imperfectly filtered, would run off foul and putrescent. Now this risk, more or less, belongs to all pumps within the City of London. They draw from a ground excavated in all directions by sewers, drains, cesspools, gas-pipes, burial-pits. The immense amount of organic matter which infiltrates the soil does, undoubtedly, for the greater part suffer oxidation, and pass into chemical repose:

\* This very important influence, exerted by the earth on various organic infiltrations, is referred to in the text only under one point of view; only as it occasions the deterioration of land-springs in urban districts, and renders their water unfit for consumption. But the subject has another equally important side. Such springs, having their waters laden with nitrates, represent the continuous removal of organic impurities which otherwise would contaminate the air. The evil of spoiled springs, therefore—while it necessitates for every urban population that their water-supply shall be artificially furnished from a distance, has great countervailing advantages. A given organic soakage will cease to vitiate the atmosphere by evaporation, in proportion as it gravitates to lower levels, and undergoes those chemical changes which accompany filtration through the soil. Hence it is evident that, for the healthiness of inhabited districts (where extensive soakage of organic matters is almost invariable) it becomes most important to maintain, or by artificial measures to accelerate, this down-draught through the soil; and the reader will scarcely need to be reminded, that, in those improvements of metropolitan sewerage, which it is a chief object of this Report to advocate, complete provision for the continuous drainage of soil is implied as an essential part.



but in any particular case it is the merest chance, whether the glass of water raised to the mouth shall be fraught only with saline results of decomposition—in itself an objectionable issue—or shall contain organic refuse in the active and infectious stage of its earlier transformations. Some recent cutting of a trench, or breakage of a drain in the neighbourhood may have converted a draught, which before was chronically unwholesome, into one immediately perilous to life. Such facts ought to be known to all persons having custody of pumps within urban districts; and it ought likewise to be known that this infiltrative spoiling of springs may occur to the distance of many hundred yards.\*

In final reference to the quality of water, whether supplied by our trading companies or derived from springs within the City, I think it expedient to mention that, against its lesser impurities, great protection is given by filtration through animal charcoal, as in various “filters and purifiers” which are before the public. These protective means do not lie within reach of the poorer classes; nor whatever their accessibility to individuals, can any such personal arrangements render it less important to

\* For a fact strikingly illustrative of this, I am indebted to my colleague, Dr. R. D. THOMSON, Lecturer on Chemistry at St. Thomas's Hospital. At Liverpool—in three wells which he examined, distant severally 760, 800, and 1050 yards from the Mersey, he found the water brackish from marine soakage, containing four or five hundred grains of solid matter *per* gallon, and totally unfit for consumption.



provide that water—the first necessary of life, be supplied for universal use in its utmost procurable purity.

Beyond the above points, which are of general application within the City, all your remaining precautions will relate to the condition of private houses; and of these—occupied by the poorer classes, there exist in the City some thousands, over which it will be requisite, by repeated inspection, to maintain an efficient sanitary watch. From circumstances to which I have already referred, it appears that your defences against Cholera will very mainly consist in removing causes of disease from within individual houses; and it is only by an organised system of inspection, for detecting and removing every unclean condition, that this object can be attained. For your encouragement in this task, I may venture to express my belief that, throughout a considerable portion of the City, the local affinities for Cholera are not too strong to be greatly modified and obviated by such a system.

With respect to this important work of sanitary inspection, what I now propose is no new proceeding within the City. More or less since the date of my appointment—but I hope, with gradual increase of completeness and efficiency, weekly visitations on a considerable scale have been made, under my direction, by your four Inspectors of Nuisances. Acting under your authority, and guided by what informa-



tion. I could obtain on the existence of endemic disease\* in your several districts, I have furnished the Inspectors every week with a variable list of houses, ranging probably from fifty to one hundred and fifty at a time, for their visitation and inquiry. The information which I have directed them to seek has referred of course to the various details of sanitary condition—to questions of lodgment, ventilation, cleanliness, drainage, water-supply, dust-removal, paving of yards and cellars, existence of nuisances, and the like: and I have constructed tabular forms for their use, which admit of this information being recorded and reviewed in the readiest manner. Week by week, before each meeting of your Court, I have had the habit of going through every particular of these somewhat considerable details. I have sorted out of them those very numerous cases in which your lawful powers could be usefully exerted; when I have deemed it necessary, I have myself made visits of verification or inquiry; and have finally laid before you, in the form which is familiar to your weekly meetings, such recommendations as the week's

\* This information has been mainly derived from two sources:—first, from the weekly Death>Returns of the nine City Registrars, which the Registrar-General most kindly allows me to have transcribed so soon as they arrive at his office;—secondly, from weekly Returns which the Medical Officers of the three City Unions have had the great kindness and liberality to supply for my assistance, as to the existence of fever and kindred disorders in the several localities under their charge.



survey has shown necessary, for enforcing works of local improvement under the powers of your Acts of Parliament. I find that within the last twelve months there have been made 3147 visitations of this nature, the results of which are recorded in your office; and, founded on the result of these inspections, there have been issued 983 orders for abatement of causes of disease.—

I am very far from considering that these arrangements have been perfect. Circumstances beyond my control have prevented me from constructing as complete an organisation as I could wish; and the fact that your Inspectors are very largely employed in other duties, has perhaps occasionally given some hurry and imperfection to their share of the work. Still—such as it is, this system has been the means of considerable advantage; and I am glad to be able to claim for your Honourable Court the distinction of being first in the metropolis to have established an arrangement for the systematic sanitary visitation of the dwellings of the poor. In relation to this subject, I beg to inform your Honourable Court, that your Inspectors have discharged the duties, which you authorised me to impose on them, with much zeal, intelligence and industry.

During the last few weeks, it has become obvious to your Honourable Court that the duties of this department of your service have grown to such dimensions as to necessitate some increase of your



staff; and acting on this opinion, mainly with a view to render more complete your sanitary supervision of the City, you have just appointed two additional Inspectors of Nuisances. In making this appointment, you have determined not to restrict any two or three Inspectors exclusively to the business of house-inspection, but to allot the joint duties—sanitary and surveying, equally among their number: parting the area of the City into six, instead of four, Inspectors' districts; so that each Inspector shall give a certain proportion of time to the duties which he has to fulfil under your Surveyor's direction, and another certain proportion to those in which he will be engaged under the direction of your Officer of Health. It is only some experience of this arrangement that can decide whether it will be the most effectual for your purpose; but in the mean time I have studied so to dispose the industry of your increased staff, under the arrangement you have ordered, as to obtain the most systematic and efficient discharge of those duties which you have desired me to superintend.

Reckoning that each Inspector, if he fulfilled no other duty, could report on the condition of about fifty houses *per diem*, I presume that henceforth, in each of your five more important districts, from one hundred to one hundred and twenty houses can be visited weekly by the Inspector, without encroaching on the time required for his other duties.



The general plan, on which I would propose that this force should be disposed, is the following:—first, as heretofore, the weekly list would contain all places needing investigation on the ground of such deaths and illness as are usually associated with preventable causes, in order that any sanitary defects may at once be remedied in them; secondly, in each week there would fall due a certain number of sanitary works (relating to house-drainage, water-supply and the like) for which you would have previously issued orders requiring them to be completed within a stated time, and on the satisfactory execution of these it will be the Inspector's duty to examine and certify; thirdly, in each district I would have a certain rota of visitation, according to the badness of the spot and its known liability to fall into filthy and unwholesome condition, requiring one set of houses to be seen weekly, another set fortnightly, another monthly, another quarterly, and so on—a rota, varying from time to time with the changing circumstances of each locality; and, out of this rota, each week would supply a stated number of cases for inquiry, to which I should occasionally add certain of those establishments in which offensive occupations are pursued. Thus, in the large number of weekly visits which I suppose the Inspector to make, there would be a certain proportion of that more elaborate kind which involves an examination of the entire house; another proportion, made for the sole pur-



pose of seeing that previous orders have been executed; another proportion, repeated at fixed intervals, simply to ascertain that houses, once cleansed, and repaired, are not relapsing into filth, nor their works becoming inefficient.

By utilising, on some such plan as this, the increased staff which you have appointed for the purpose, and by giving to its execution my continual superintendence, I trust to be able, from time to time, to certify you that the City becomes better and better capable of resisting epidemic invasion. From such statements as I have set before you, on the local affinities of disease—not of Cholera alone, but of typhus and its kindred, you will be prepared to expect increased sanitary advantage, from this more systematic suppression of the causes of death; and I believe you will not be disappointed. Whether the anticipated pestilence rage in our metropolis or not, you will be combatting, day by day, the influence of other malignant diseases. Whenever it may be in my power to tell you generally of the City, that the dwellings of the poor are no longer crowded and stifling; nor their walls mouldy; nor their yards and cellars unpaved and sodden; nor their water-supply defective; nor their drainage stinking; nor their atmosphere hurt by neighboring nuisances; then, gentlemen, whether Cholera test your success or not, surely you will have contributed much to conquer more habitual enemies. For, whatever there may be specific and



exceptional in the production of Cholera, at least it touches no healthy spot: the local conditions which welcome its occasional presence, are, in its absence, hour by hour, the workers of other death; and in rendering a locality secure against the one, you will also have made it less vulnerable by the others.

As a last suggestion in this part of my subject, there are two steps which I would recommend to your Honourable Court, as likely to assist the labours of your officers, and to bring a large quantity of important information before you:—first (according to a plan adopted here in the last epidemic) that printed notices should be posted in every back-street, court and alley of the City, and should be renewed once a month, advising the careful maintenance of cleanliness in all houses, and inviting all persons who are aggrieved by any nuisance, or by any neglect of scavengers and dustmen, or by any defect of water-supply, forthwith to make complaint at your Office, or to the Inspector of the district, whose name and address might be subjoined; secondly, that a circular letter should be written to all persons in parochial authority, also to other clergy, to heads of visiting societies and the like, begging them to communicate with your officers on every occasion when any local uncleanness or nuisance may come within their knowledge.

3. Finally, gentlemen—in the probable anticipation that next year Cholera will prevail in London with at least its former severity, it may be claimed



of my office that I should say something with respect to personal precautions for avoidance of the disease. While most willing to place at your disposal any useful results of my practical experience in the matter, I cannot but feel the great difficulty of making general suggestions in a form really capable of particular application.

From the eminently local prevalence of the poison, it may be inferred that, for all whose circumstances allow an option in the matter, the first and most important precaution would consist in avoiding those localities where the epidemic is active. Our knowledge of the subject enables us confidently to say that, if in one spot the chance of being attacked by Cholera is as 1 to 100, in another it becomes 1 to 50, in a third 1 to 5, in a fourth almost an equal chance whether to be attacked or not. Nothing is gained towards security by the mere act of leaving our metropolitan area, if one resorts to some other place where the system of drainage is equally vicious, or where—as at our nearest bathing-place, the beach is made almost as offensive by sewage as here the river-banks. From earlier statements in my Report, it will be obvious to you that the eligible sites of residence are those which stand high and dry, with clean effectual drainage of their soils and houses, conveying all organic refuse beyond range of the local atmosphere.

I will not pass this part of the subject without admitting that the course here suggested might



involve a considerable desertion of particular localities, and a transient injury to their commerce. This unavoidable result of proclaiming the laws of the disease, I must regret in regard of its personal bearings. But the facts of the case are all-important for the public, and sanitary improvement will perhaps move more quickly in the country, when it is known that the pecuniary prosperity of places may suffer from their reputation for endemic disease.

In case of Cholera prevailing with severity in spots containing a dense poor population, great assistance would be given to medical and sanitary measures, if a number of empty unlet houses, healthily situated, were at disposal of the authorities; into which, under proper regulations, they might induce certain of the poorest families to migrate for a time, as to places of refuge, till the disease should have subsided about their original dwellings.

For persons, whose circumstances or duties retain them unavoidably in the midst of those suffering districts where the poison is most active, the best counsel I can offer—even if at first hearing it seem vague, is, that they should be vigilant as to preserving the greatest possible soundness and vigor of general health; keeping the body, so far as may be, undisturbed by extremes of heat and cold, undepressed by long confinement, unflattered by violent passions, unexhausted by physical or mental fatigue, untried by any excess or any privation; taking for diet a sufficiency of fit and nutritive food, rather in generous measure than otherwise, but far



from the confines of intemperance, and giving meanwhile a prompt attention and cure to whatever accidental ailments may arise.

Such, in general language, are our best fortifications against the poison. It may be well, however, to add that in our metropolitan climate—perhaps everywhere else, the human frame tends to require some periodical aid from medicine. It may be the excitement and labour of London; it may be its atmosphere; it may be native peculiarity: but this the fact stands—that there are few persons who do not at intervals require the re-establishing effects of what is called *tonic* treatment. Probably three-fourths of the prescriptions we write are aimed at this mere tendency to depression in the human body, as manifested in one form or another. Now—as a man, going on some distant voyage of exploration, submits his chronometer to a last intelligent scrutiny, before he exposes it to the ordeal of other climates; so, in this matter of frequenting infected districts, men will do prudently, before they pass into perils which may test their powers of resistance, to see that they carry about with them no enfeeblement or disrepair which a short submission to medical discipline could effectually remove. For with epidemic poisons generally—and in a marked degree with Asiatic Cholera, it seems that all states of languor, depression, and debility, enhance the risk of infection.

Beyond these general cautions, there is yet one which requires very particular mention, it



In respect of the commencement and predispositions of the disease, it is now well known—first, that in this country it habitually begins with diarrhoea of a painless and apparently trivial character; secondly, that diarrhoea, however produced, is, of all known personal conditions, the one most likely to invite an attack of cholera at times when that disease is epidemic; thirdly, that during the prevalence of Cholera, side by side with it in a district, there is always a vast amount of epidemic diarrhoea, apparently constituting slighter degrees or earlier stages of the same disease; that this condition is just as amenable to treatment as the confirmed collapse of Cholera is utterly the opposite; and—since we can never say how incurable a few hours may render this insidious symptom, that its immediate arrest is a consideration of vital importance.

Precautions against causing diarrhoea to oneself by errors of diet will vary somewhat with different individuals. Every person of ordinary discretion knows the habits of his own body, and can be tolerably confident, within certain limits of food, that he gives himself no occasion of sickness. He remembers articles of diet, which his neighbour perhaps may innocently indulge in, but which to himself are the occasion of inward disorder—of purging or vomiting, “bilious attack” or nettlerash, headache, nightmare, or some other inconvenience. This knowledge fixes the limits which it primarily behoves him to regard; taking such



food only into his body as experience has shown best to agree with it; and adhering to this course, without panic as to particular accustomed articles, and without abrupt discontinuance of old harmless habits. Apart from personal peculiarities, the chief dangers of diet appear to lie as follows: first, in those excesses of meat and drink, which (especially under circumstances of fatigue) occasion sickness to the stomach, or an increased labour of digestion; secondly, in taking food, solid or fluid, which is midway in some process of chemical transition—half-fermented beer and wine, water containing organic matters, meat and game and venison no longer fresh and not completely cooked, fish and shell-fish, in any state but the most perfect freshness, fruit or vegetables long-gathered or badly kept, and the like; thirdly, in a profusion of cold sour drink; fourthly, in partaking largely of those articles of diet which habitually, or by reason of imperfect cooking, pass unchanged through the intestinal canal; and fifthly, in the indiscreet use of purgative medicines, or in taking any article of diet which is likely to produce the same effect.

In short, if care be taken under all these heads to avoid occasions of intestinal disturbance; if the diet, while generous, be simple and strictly temperate; if regular hours be given to sleep, to meals, to industry, to recreation; if a fair proportion of out-door exercise be taken; if damp and extremes of temperature be guarded against; and all practical pains be given to avoid the sources of bodily and



mental depression: the danger will certainly be reduced to its *minimum*; and whatever effects the epidemic may happen to produce can be readily recognised and boldly encountered.

Should these effects arise in their customary form of diarrhœa, it is of absolute urgent necessity that immediate medical treatment be resorted to: and so important for the safety of life is the recognition of this symptom in the earliest stage of its occurrence, that no unwonted action of the bowels should pass unobserved.

The public constantly asks to be informed of some drug, or combination of drugs, to which under these circumstances they may have immediate recourse. But after very careful consideration of this subject, after hearing arguments on both sides, and reading those prescriptions which have been recommended for adoption, I venture to express my opinion that the safest course for the public, in regard of this threatened disease, will be to follow the same principle as guides them in their ordinary seizures of illness, and to obtain as quickly as possible the aid of their customary medical advisers. There is an invincible aptitude in the public to misapply all precautionary medicines within their reach; often superstitiously to treat them as charms, under the protection of which they may neglect temperance of diet and all other solicitude for health; often ignorantly to employ them in cases for which their use is forbidden; often, at the instigation of panic, to abuse them by preposterous and hurtful ex-



cess. Nervous and uneducated persons, instead of employing their astringent dose simply to stop any undue action from the bowels, would be apt, as the danger neared them, to make it an habitual dram in order to anticipate any such action; and the frequent after-necessity for purgative medicine, thus created, would constitute the very danger they desire to avoid. Recognising, therefore, at its full value the importance of immediately treating, in every case, the first phenomena of epidemic diarrhœa, I must yet doubt whether the conditions of medical science and general education are such as to justify the promulgation of general formulæ so liable to extensive abuse. I speak of course with particular reference to the metropolis. In remote rural districts it may often be desirable that discreet and intelligent persons, — the Clergy, for instance, should obtain from their medical neighbours some astringent preparation to which — in the very rare event of real emergency, temporary recourse might be had; but — for so hazardous a condition of disease, I must repeat as a general rule, that no nostrum, even in the best-intentioned hands of ignorance, can supply the place of medical discrimination.

During the acute prevalence of the epidemic in any particular locality, it becomes of great importance to bring the uneducated classes of society as far as possible, under systematic medical care; in the absence of which, they are likely to neglect all premonitions of the disease, and thus to incur much unnecessary danger. To fulfil this object,



as regards the poor, express provision has been made by the law: and it might be well for other classes, under similar exposure to attack, to consider how far they could arrange for their households a similar plan of protection.

Under any Order in Council which brings into action the extraordinary power of the Nuisances Removals Law, the General Board of Health has authority to enjoin on all Boards of Guardians throughout the country, that they provide for "persons afflicted by or threatened with" the disease, such medical aid as may be required: and the actual working of this has been that, on all occasions of epidemic Cholera prevailing in particular localities, the General Board of Health has called on the local Boards of Guardians to establish systematic house-to-house visitation, for discovering and treating among the poor all premonitory symptoms of the disease.

In the too probable event of its becoming necessary next year to establish this system of medical organisation in parts of the metropolis, I have no reason to doubt that a requisition to the above effect will be addressed to the Guardians of the City poor; and, in this anticipation, I think it desirable to bring, in conclusion, one more point under notice of your Honourable Court. During the former invasion, the Guardians within the City of London resisted the requirements of the General Board of Health; and the first fourteen weeks of the epidemic consequently passed without the establishment of any



visitatorial system for arresting its progress. In the fifteenth week, however, the Corporation of the City undertook the unperformed duty, not legally devolving on them, and requested me to make arrangements for the purpose of its execution. With assistance of the several Medical Officers of the City Unions, I immediately organised the requisite staff, and from that moment to the close of the epidemic there continued under my superintendence a systematic visitation of the poor, with beneficial, though tardy and imperfect, results.

Recalling these incidents to the recollection of your Honourable Court, I would beg to observe that no similar endeavour can fully succeed, except as a system—well considered beforehand, and adjusted to the various circumstances which may require its application. Uncertainties of responsibility and conflicts of jurisdiction would inevitably occasion a sacrifice of life; and therefore, before the time when Cholera is likely to become epidemic, it should be definitively settled who is to undertake this organisation. Your Commission can have no jurisdiction in the matter; and the interference of the Corporation would be only at its own option. The legal responsibility rests solely with the Boards of Guardians: and it seems to me indispensable that, before the time for action arrives, the Corporation should determine its intentions; in order that the Boards of Guardians, if again called upon to organise arrangements of the kind in question, may know distinctly—either that the Corporation has



relieved them of their task, or that there rests on them the undivided obligation of providing for the crisis.

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III. Gentlemen, in concluding this report, I will not attempt to disguise from you that it has been written under feelings of considerable apprehension; and I am fully conscious that, in thus expressing myself, I am liable to the imputation of raising unnecessary alarm.

If the possible mischief to be wrought by epidemic Cholera lay in some fixed inflexible fate, whatever opinion or knowledge I might hold on the subject of its return, silence would be better than speech; and I could gladly refrain from vexing the public ear by gloomy forebodings of an inevitable future.

But from this supposition the case differs diametrically: and the people of England are not like timid cattle, capable, only when blindfold, of confronting danger. It belongs to their race—it belongs to their dignity of manhood, to take deliberate cognisance of their foes, and not lightly to cede the victory. A people that has fought the greatest battles—not of arms alone, but of genius and skilful toil, is little likely to be scared at the necessity of meeting large danger by appropriate devices of science. A people that has inaugurated railways—that has spanned the Menai Strait and



reared the Crystal Palace, can hardly fear the enterprise of draining poison from its infected towns. A people that has freed its foreign slaves at twenty millions' ransom, will never let its home population perish, for cheapness sake, in the ignominious ferment of their filth.

Therefore, gentlemen, advisedly I state the danger as it seems to me. England has again become subject to a plague, the recurrence of which—or the duration—or the malignity, no human being can predict.

But, if I state the danger, so likewise, to the best of my belief, I state the remedy and defence. Colossal statistics concur with circumstantial inquiry to refer this disease, in common with many others that scourge our population, distinctly and infallibly, to the working of local causes—of causes susceptible of removal—of causes which it devolves on our Legislature to remove.

The exemption we seek is worth a heavy purchase. My thoughts turn involuntarily to the epidemics of former centuries, to their frequent returns and immense fatality. I reflect on the Plague, and how it influenced the average death-rate of London; how in 1593 it doubled it, in 1603 trebled it, in 1625 quadrupled it; and how (after a less considerable visitation in 1636) it actually multiplied the mortality sevenfold in the tremendous epidemic of '65. The ravages of that pestilence are best appreciated in the fact, that we



esteem the Great Fire of London a cheap equivalent for their arrest; looking to that eventful conflagration of the metropolis with gratitude, rather than horror, because of the mightier evils that were extinguished with its flames.

To so frightful a development as this, Cholera, by many degrees, has not attained; but, ignorant as we are of its laws and resources, we dare not surmise, at any renewed invasion, what increment of severity it may have won. In the simple fact, that our country has again become subject to pestilential epidemics, there lies an amount of threat only to be measured by those who are conversant, by history or experience, with the possible developments of such disease.

Therefore, gentlemen, having the deepest assurance that these unexplored possibilities of evil may be foreclosed by appropriate means, I should ill deserve your confidence if I shrank from setting before you—however ungracious the task, my deliberate estimate of the peril.

It pertains to my local office to tell you of local cures; and this I have sought to do. I have suggested that, by active superintendence of all houses within your jurisdiction, there may be suppressed in detail those several causes of the disease which arise in individual neglect; that, by elaborate care as to the cleanliness of pavements, markets, docks and sewers, something may be done towards the mitigation of more general causes; that, by a



well-organised system of medical visitation, very much may be effected towards encountering attacks of the disease while still amenable to treatment:— that these with similar precautions are therefore to be recommended.

And not for a moment would I seem to depreciate such measures, palliative only, and partial though they be. By their judicious application, from Aldgate to the Temple, life may possibly be saved to some hundreds; to children that are fondly loved, to parents that are the stay of numbers.

But against the full significance of any epidemic, I am bound to tell you that these are but poor substitutes for protection. To render them effectual—even in their narrow sphere of operation, these must be great vigilance and great expenditure; a weary vigilance and a dis-proportionate expenditure, because chiefly given to defeat in detail what should have been prevented in principle. And be done what may, in this palliative spirit, the sources of the disease are substantially unstayed: for the faults, to which its metropolitan prevalence is due, consist not simply in a number of individual mis-managements, but include a common and radical mal-construction as their chief.

No city—so far as Science may be trusted, can deserve immunity from epidemic disease, except by making absolute cleanliness the first law of its existence; such cleanliness, I mean, as consists in



the perfect adaptation of drainage, water-supply, scavenging and ventilation to the purposes they should respectively fulfil; such cleanliness, as consists in carrying away by these means, inoffensively, all refuse materials of life—gaseous, solid or fluid, from the person, the house, the factory or the thoroughfare, so soon as possible after their formation, and with as near an approach, as their several natures allow, to one continuous current of removal.

To realise for London this conception of how a city should cleanse itself, may involve, no doubt, the perfection of numberless details. Yet, most of all, it would pre-suppose a comprehensive organisation of plan and method: not alone for that intramural unity of system which is needful for all the works, not least for those of drainage and water-supply; but, equally, to harmonise these works with other extramural arrangements for utilising to the country the boundless wealth of metropolitan refuse—for distributing to the uses of agriculture what is then rescued from the character of filth—for requiting to the fields in gifts for vegetation, what they have rendered to the town in food for man.

How far the construction of London has proceeded on the recognition of such objects, or how far the advantages of such a plan have been realised, it could only be a mockery to ask. Our metropolis, by successive accretions, has covered



mile after mile of land. Each new addition has been made with scarcely more reference to the legitimate necessities of life, than if it had clustered there by crystallisation. With no scientific forecast to plan the whole, with little but chance and cheapness to shape the parts, our desultory architecture has eclipsed the conditions of health. Draining uphill or downhill, as the case might be, and running their aqueducts at random from chalk-quarries or river-mud; or ponding sewage in their cellars and digging beside it for water; blocking-up the inlets of freshness and, equally, the outlets of nuisance; constructing sewers to struggle with the Thames—now to pollute its ebb, now to be obstructed by its flow; the builders of many generations have accumulated sanitary errors in so intricate a system, that their apprehension and their cure seem equally remote.

Therefore—by reason of causes, ramified through the whole metropolis and deep-rooted in its soil, which bind all parts together in one common endurance of their effects—therefore cannot epidemic disease be conquered by any exertions or by any amelioration, short of the complete and comprehensive cure. Against the danger we dread, no shelter is to be found in petty reforms and patch-work legislation. Not to inspectorships of nuisance, but to the large mind of State-Policy, one must look for a real emancipation from this threatening plague.



A child's intellect can appreciate the wild absurdity of seeking at Peru what here runs to waste beneath our pavements, of ripening only epidemic disease with what might waugment the food of the people, of waiting like our ancestors to expiate the neglected divinity of water in some bitter purgation by fire!

But it needs the grasp of political mastership, not uninformed by Science, to convert to practical application these obvious elements of knowledge; to recognise a great national object irrelevant to the interests of party; to lift an universal requirement from the sphere of professional jealousies, and to found in immutable principles the sanitary legislation of a people.

I have the honour to remain,

Gentlemen,

Your obedient humble Servant,

JOHN SIMON



- APPENDIX OF TABLES, with an-  
 illustrating the Sanitary Condition of the City of London.
- I. Quinquennial Synopsis of City-Mortality, from Michaelmas 1848 to Michaelmas 1853; with Death-Rates, calculated for this period, on the population enumerated in 1851, for each District and Sub-District of the City.
  - II. First annual enumeration of Deaths, relating to the fifty-two weeks dating from October 1st, 1848, to September 28th, 1849.
  - III. Second annual enumeration of Deaths, relating to the fifty-two weeks dating from September 30th, 1849, to September 28th, 1850.
  - IV. Third annual enumeration of Deaths, relating to the fifty-two weeks, dating from September 29th, 1850, to September 27th, 1851.
  - V. Fourth annual enumeration of Deaths, relating to the fifty-two weeks, dating from September 28th, 1851, to September 25th, 1852.
  - VI. Fifth annual enumeration of Deaths, relating to the fifty-two weeks, dating from September 26th, 1852, to September 24th, 1853.
  - VII. Quinquennial Mortality, classified by Age; first, for the entire City; next, for the three Unions severally.
  - VIII. Number of Deaths occasioned, during the last five years, by certain Acute Diseases, chiefly epidemic, infectious, and endemic.
  - IX. Comparative Mortality in different seasons of the year: namely, in the Autumn-Quarters (October, November, December) in the Winter-Quarters (January, February, March) in the Spring-Quarters (April, May, June) and in the Summer-Quarters (July, August, September) of the five years from Michaelmas 1848 to Michaelmas 1853.
  - X. Autumn Mortality.
  - XI. Winter Mortality.
  - XII. Spring Mortality.
  - XIII. Summer Mortality.



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*illustrating the Sanitary Condition of the City of London.*

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- X. Autumn Mortality.
- XI. Winter Mortality.
- XII. Spring Mortality.
- XIII. Summer Mortality.



NOTE TO TABLE, No. I.

In calculating the Death-Rates given in the last lines of this Table, I have proceeded as follows:—

First, I have counted all *Workhouse-Population* and *Workhouse-Deaths* as forming part of the aggregate population and aggregate mortality of that Union to which the particular Workhouse legally belongs.

Next, I have distributed among the several sub-districts the population and the mortality of their Union Workhouses, in the ratio of the general sub-district population; so as to prevent the high Workhouse-Mortality from telling unjustly against that sub-district in which the Workhouse happens to have been erected.

Thus, for instance, the East London Union has its male Workhouse placed in the territory of the West London Union; but I have reckoned it as belonging to the East London Union, in respect both of its population and its deaths. Similarly, the City of London Union has its Workhouse situate at Bow; but, not the less, I have considered its 794 inmates and 526 deaths as belonging to the population and the mortality of our central Union.

Thus again for the sub-district death-rates—for instance, in the two sub-districts of the East London Union: reckoning the Workhouse-Population not as exclusively due either to Cripplegate or to St. Botolph, but as furnished by these sub-districts jointly, in the ratio of their populations, I have distributed 576 between them in the proportion 23435 : 20582. The Workhouse-Deaths of the period (802) have been similarly distributed; and the rates, given in the last line of the table, are finally deduced from a comparison of these sums, viz:—

$23435 + 306.66 : 2458 + 426.991 :: 1000 : 121.515$  which, divided by 5 (to show an annual, instead of a quinquennial, result) gives 24,303 as the annual death-rate for St. Botolph; and, in like manner,  $20582 + 269.33 : 2483 + 375.008$  gives 137.065 as the quinquennial, and 27.41 as the annual death-rate *per* thousand for the sub-district of Cripplegate.

*Hospital Deaths* have been distributed, as far as possible, according to the previous residence of the patients. Thus the north sub-district of the West London Union, in which St. Bartholomew's Hospital is situated, is made to retain only its just proportion of deaths. On the same principle I have reckoned to the death-lists of other sub-districts those cases in which I could ascertain that the residents of such sub-districts had gone to die either in St. Bartholomew's, or in other Metropolitan Hospitals.

Death-rate  
per 1000

Mortality of Five Years from  
1848 to 1853

of 1851  
the Census  
according to  
Population



Population according to the Census of 1851.	EAST LONDON UNION.			WEST LONDON UNION.			CITY OF LONDON UNION.				Work-house.	
	Saint Botolph, 23,435	Cripple-gate, 20,582	Work-houses, 576	North, 12,350	South, 15,844	Work-house, 409	S. W. W.	N. W.	South,	S. E.		N. E.
1848-9 . . . . . 3763	519	574	179	372	598	126	293	245	263	214	262	103
1849-50 . . . . . 2752	396	443	125	324	290	108	176	168	218	183	219	101
1850-1 . . . . . 2978	493	471	167	317	313	68	191	169	258	217	213	101
1851-2 . . . . . 3064	534	460	176	266	379	129	196	198	203	171	235	117
1852-3 . . . . . 3040	516	534	155	289	309	164	170	188	223	164	224	104
***	2458	2483	802	1568	1889	595	1026	968	1165	949	1153	526
Total . . . . . 15,597	5743			4052			5787					
per thousand of the living	24.30   27.41   *			29.19   27.66   *			23.83   17.96   21.90   19.52   19.58   *			20.40		
Yearly Death-rate	25.75			28.33			20.40					

N.B. The first year's total (3763) includes 15 deaths, which, by reason of their imperfect registration, it has been impossible to refer correctly to the Unions where they occurred.



No. II.—First Annual Enumeration of Deaths, relating to the fifty-two weeks dating from October 1st, 1848, to September 29th, 1849.

1092

DEATHS in the four quarterly periods terminating as follows:—	EAST LONDON UNION.			WEST LONDON UNION.			CITY OF LONDON UNION.			Work-house.								
	Saint Botolph.		Work-houses.	North.		South.	N.W.		South.		S.E.	N.E.						
	M.	F.	M.	F.	M.	F.	M.	F.	M.		F.	M.	F.					
I. In the quarter ending Dec. 30th. . . . .	63	64	128	74	44	30	55	48	27	23	25	15	31	31	62	23	1	22
III. In the quarter ending Dec. 30th. . . . .	30	41	71	71	33	32	65	50	14	52	53	50	51	50	51	50	14	22
II. In the quarter ending March 31st. . . . .	70	66	136	73	39	34	73	40	32	31	28	32	29	23	40	37	14	22
III. In the quarter ending March 31st. . . . .	40	45	85	77	20	41	110	45	63	50	60	52	53	30	42	50	12	14
III. In the quarter ending June 30th. . . . .	40	45	85	77	46	31	77	45	31	24	37	21	24	21	22	28	12	14
I. In the quarter ending June 30th. . . . .	85	90	175	110	43	43	110	45	55	50	58	45	50	50	50	50	26	13
IV. In the quarter ending Sept. 29th. . . . .	88	83	171	148	75	73	295	133	77	40	48	38	45	32	40	33	5	13
DEATHS IN THE YEAR	261	258	519	372	204	168	598	316	245	127	149	114	123	91	133	129	32	71
Sum of the four quarters..	3748	3748	1272	1096	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380

Unclassified . . . . . 15

1272

1096

1380

TOTAL FOR THE YEAR



from September 30th, 1849, to September 28th, 1850.

DEATHS in the four quarterly periods, terminating as follows:—	EAST LONDON UNION.			WEST LONDON UNION.			CITY OF LONDON UNION.			Work-house.										
	Saint Botolph.			North.			South.				S. E.			N. E.						
	M.	F.	Work-houses.	M.	F.	Work-houses.	M.	F.	Work-houses.		M.	F.	Work-houses.	M.	F.	Work-houses.				
I. In the quarter ending Dec. 29th. . . . .	62	56	137	42	43	85	35	22	57	26	19	27	28	30	21	22	30	9	19	28
II. In the quarter ending March 30th. . . . .	49	47	96	50	41	91	23	23	46	16	29	48	32	22	36	45	29	15	14	29
III. In the quarter ending June 29th. . . . .	39	41	80	39	35	74	13	21	34	14	25	25	15	23	20	21	29	9	13	22
IV. In the quarter ending Sept. 28th. . . . .	57	45	102	35	39	74	20	19	39	18	21	22	21	16	15	15	28	12	10	22
Sum of the four quarters. . . . .	207	189	444	166	158	324	91	85	176	74	94	122	96	91	92	103	116	45	56	101

965 722 1065

TOTAL FOR THE YEAR . . . . . 2752



No. IV.—Third Annual Enumeration of Deaths, relating to the fifty-two weeks dating from September 29th, 1850 to September 27th, 1851.

DEATHS in the four quarterly periods, terminating as follows:—	EAST LONDON UNION.				WEST LONDON UNION.				CITY OF LONDON UNION.				Work-house.												
	Saint Botolph.		Cripple-gate.		North.		South.		N. W.		S. E.			N. E.											
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		M.	F.										
I. In the quarter ending Dec. 29th. . . .	47	54	68	57	125	32	7	25	62	72	29	33	35	37	44	24	20	24	31	19	29	48	22	16	6
II. In the quarter ending March 29th. . . .	87	67	77	63	140	49	19	30	87	89	51	36	46	43	48	39	26	42	27	35	32	55	11	12	12
III. In the quarter ending June 28th. . . .	72	43	58	43	101	48	26	22	92	79	45	47	38	41	38	22	16	35	35	31	25	70	15	13	13
IV. In the quarter ending Sept. 27th. . . .	63	60	62	43	105	38	13	25	76	73	53	23	38	35	40	21	18	24	23	17	25	36	14	13	13
Sum of the four quarters..	269	224	265	206	471	167	65	102	317	313	178	139	157	156	169	125	109	108	102	111	111	217	57	44	44
	1131				698				1149																

1131

698

1149

TOTAL FOR THE YEAR



from September 28th, 1851 to September 25th, 1852.

DEATHS in the four quarterly periods, terminating as follows:—	EAST LONDON UNION.				WEST LONDON UNION.				CITY OF LONDON UNION.				Work-house.		
	Saint Botolph.	Cripple-gate.	Work-houses.		North.	South.	Work-house.		S. W.	N. W.	South.	S. E.		N. E.	
	M. F.	M. F.	M. F.		M. F.	M. F.	M. F.		M. F.	M. F.	M. F.	M. F.		M. F.	
I. In the quarter ending Dec. 27th...	73	59	32	64	40	37	18	30	63	29	26	23	48	55	29
800	140	117	64	68	80	30	30	54	50	33	31	31	21	19	
II. In the quarter ending March 27th...	62	50	18	30	30	58	25	12	20	22	33	28	31	27	17
773	124	96	48	54	101	37	37	61	42	61	61	50	67	32	
III. In the quarter ending June 26th...	54	78	21	17	39	65	23	8	24	23	22	19	30	33	17
774	110	131	38	70	121	31	31	51	47	51	41	47	59	28	
IV. In the quarter ending Sept. 25th...	77	83	6	20	35	41	17	14	26	18	29	20	15	31	12
717	160	116	26	74	77	31	14	32	44	32	49	26	54	28	
Sum of the four quarters. 3064	266	241	219	77	144	201	178	46	103	93	110	93	99	72	55
	534	460	176	266	379	129	129	196	198	203	171	171	235	117	
	1170				774				1120						

TOTAL FOR THE YEAR. . . . . 3064



No. VI.—Fifth Annual Enumeration of Deaths, relating to the fifty-two weeks dating from September 26th, 1852 to September 24th, 1853.

DEATHS IN THE four quarterly periods, terminating as follows:—	EAST LONDON UNION.		WEST LONDON UNION.		CITY OF LONDON UNION.		WORK-HOUSES.
	Saint Botolph.	Cripple-gate.	North.	South.	N.W.	S. E.	
I. In the quarter ending Dec. 25th....	72	46	35	68	21	31	17
	58	60	33	35	22	26	10
	130	106	68	67	43	57	33
	72	46	35	31	21	31	18
	60	60	32	35	14	19	15
	130	106	67	67	37	54	33
675							
II. In the quarter ending March 26th...	67	80	35	66	38	32	15
	64	66	45	55	19	33	20
	131	146	100	54	57	65	49
	67	80	35	31	38	32	29
	66	66	45	55	19	33	20
	131	146	100	54	57	65	49
878							
III. In the quarter ending June 25th....	69	69	53	89	27	30	19
	60	62	36	46	20	29	24
	129	131	90	46	47	59	50
	69	62	36	46	27	30	26
	60	62	46	44	25	21	20
	129	131	90	46	47	59	50
817							
IV. In the quarter ending Sept. 24th...	70	84	32	66	18	25	10
	56	67	34	52	23	17	14
	126	151	66	31	41	42	32
	70	84	32	34	18	25	18
	56	67	34	25	23	17	14
	126	151	66	52	41	42	32
670							
Sum of the four quarters.....	278	279	155	289	104	118	75
	238	255	151	309	84	105	89
	516	534	309	164	188	223	164
	278	279	155	289	104	118	75
	238	255	151	309	84	105	89
	516	534	309	164	188	223	164

1073

762

1205

City of London Union. Work-houses. N.W. South. S. E. N. E. 0. Deaths in the four quarterly periods, terminating as follows:— I. In the quarter ending Dec. 25th.... 675 II. In the quarter ending March 26th... 878 III. In the quarter ending June 25th.... 817 IV. In the quarter ending Sept. 24th... 670 Sum of the four quarters..... 278 238 255 516 278 279 151 309 164 188 223 164 104



NO. VII.—*Quinquennial Mortality, classified by age, first for the entire City, and then for the three Unions severally.* 1013

Year by year, dating from Michaelmas to Michaelmas	Deaths in the Population of the City of London.	Under 5 Years of Age.		From 5 to 10.		From 10 to 15.		From 15 to 20.		From 20 to 30.		From 30 to 40.		From 40 to 50.		From 50 to 60.		From 60 to 70.		From 70 upwards.		Age not reported.	Total.
		Under 5 Years of Age.	From 5 to 10.	From 10 to 15.	From 15 to 20.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	From 70 upwards.	Age not reported.											
1848-9	150	202	92	90	292	345	396	355	366	367	15	3763											
1849-50	131	83	44	70	166	200	251	254	318	334	0	2752											
1850-1	81	124	48	60	169	227	248	261	303	342	2	2978											
1851-2	140	113	57	84	196	253	267	260	287	350	0	3061											
1852-3	81	94	37	59	87	258	268	297	320	393	0	3040											
Sum of Five years	130	616	278	363	1002	1283	1430	1427	1594	1786	17	15597											
Local Distribution.																							
East London Union		215	80	105	338	432	488	444	551	619	0	5743											
West London Union		141	75	122	305	376	405	393	420	398	1	4052											
City of London Union		260	123	136	359	475	537	590	623	769	1	5787											
Uncertain Address		*	*	*	*	*	*	*	*	*	15	15											

No. VI.—*Table of Mortality of Deaths reported to the Registrar-General, 1823-1853.*



No. VIII.—Number of Deaths occasioned, during the last Five Years, by certain Acute Diseases, chiefly Epidemic, Infectious, and Endemic.

	Fever.	Acute Diarrhoea (not of infants) Dysentery, and Cholera.	Scarlet-Fever and Cynanche maligna.	Small-Pox.	Erysipelas, Pyæmia, and Puerperal Fever.	Diarrhoea, Bronchitis and Pneumonia of infants under 3 years of age.	Measles, Hooping-cough and Group.	Hydrocephalus and Convulsions of infancy.	Total of preceding columns.
In the successive years terminating severally as follows:—									
At Michaelmas, 1849.....	166	825	135	17	44	285	196	264	1932
1850.....	118	54	32	33	40	243	124	219	863
1851.....	107	23	46	41	17	340	272	282	1128
1852.....	165	37	86	96	24	330	132	308	1178
1853.....	145	43	85	15	26	304	190	289	1097
Total Number of such Deaths in the Five Years 1848-53.	701	982	384	202	151	1502	914	1362	6198



(Oct., Nov., Dec.) in the Winter Quarters (Jan., Feb., March) in the Spring Quarters (April, May, June) and in the Summer Quarters (July, Aug., Sept.) of the Five Years from Michaelmas 1848 to Michaelmas 1853.

SYNOPSIS.

DEATHS in the different seasons of five years, as follows:—	EAST LONDON UNION.				WEST LONDON UNION.				CITY OF LONDON UNION.					Total for entire City. 883		
	Saint Botolph.		Cripple-gate.		Work-houses.		North.	South.	Work-house.	S. W.	N. W.	South.	S. E.		N. E.	Work-house.
	616	613	201	357	392	129										
In five Autumn Quarters..	1430		878		1370		245	274	272	227	271	119	3678			
In five Winter Quarters..	1487		1018		1647		248	274	347	265	360	153	4152			
In five Spring Quarters..	1297		1032		1383		226	230	273	255	262	137	3712			
In five Summer Quarters..	1529		1124		1387		307	228	273	202	260	117	4040			



No. X.—Comparative Mortality in Different Seasons of the Year.

Year	EAST LONDON UNION.				WEST LONDON UNION.			CITY OF LONDON UNION.				Totals for entire City.		
	Saint Botolph.	Cripple-gate.	Work-houses.		North.	South.	Work-house.	S.W.	N.W.	South.	S.E.		N.E.	
1848	127	128	31		74	103	29	40	50	59	40	62	23	766
1849	118	137	44		85	70	23	57	45	55	51	52	28	765
1850	101	125	32		62	72	14	48	44	49	55	48	22	672
1851	140	117	64		68	80	30	63	54	52	48	55	29	800
1852	130	106	30		68	67	33	37	43	57	33	54	17	675
Total of Five Seasons..	616	613	201		357	392	129	245	236	272	227	271	119	3678

DEATHS IN FIVE AUTUMN QUARTERS AS FOLLOWS:—

Oct., Nov., Dec., 1848..

1849..

1850..

1851..

1852..

Total of Five Seasons..



No. XI.—Comparative Mortality in Different Seasons of the Year.

Year	EAST LONDON UNION.		WEST LONDON UNION.		CITY OF LONDON UNION.				Totals for entire CITY.		
	Saint Botolph.	Cripple-gate.	North.	South.	S.W.	N.W.	South.	S.E.			
1823	136	117	73	90	52	63	60	52	822		
1824	136	117	73	90	52	63	60	52	822		
1825	136	117	73	90	52	63	60	52	822		
1826	136	117	73	90	52	63	60	52	822		
1827	136	117	73	90	52	63	60	52	822		
1828	136	117	73	90	52	63	60	52	822		
1829	136	117	73	90	52	63	60	52	822		
1830	136	117	73	90	52	63	60	52	822		
1831	136	117	73	90	52	63	60	52	822		
1832	136	117	73	90	52	63	60	52	822		
1833	136	117	73	90	52	63	60	52	822		
1834	136	117	73	90	52	63	60	52	822		
1835	136	117	73	90	52	63	60	52	822		
1836	136	117	73	90	52	63	60	52	822		
1837	136	117	73	90	52	63	60	52	822		
1838	136	117	73	90	52	63	60	52	822		
1839	136	117	73	90	52	63	60	52	822		
1840	136	117	73	90	52	63	60	52	822		
1841	136	117	73	90	52	63	60	52	822		
1842	136	117	73	90	52	63	60	52	822		
1843	136	117	73	90	52	63	60	52	822		
1844	136	117	73	90	52	63	60	52	822		
1845	136	117	73	90	52	63	60	52	822		
1846	136	117	73	90	52	63	60	52	822		
1847	136	117	73	90	52	63	60	52	822		
1848	136	117	73	90	52	63	60	52	822		
1849	136	117	73	90	52	63	60	52	822		
1850	136	117	73	90	52	63	60	52	822		
1851	136	117	73	90	52	63	60	52	822		
1852	136	117	73	90	52	63	60	52	822		
1853	136	117	73	90	52	63	60	52	822		
Total of Five Seasons...	641	623	223	464	248	274	347	265	360	153	4152

No. XII.—Comparative Mortality in Different Quarters of the Year.



## No. XII.—Comparative Mortality in Different Seasons of the Year.

## SPRING QUARTERS.

DEATHS in five Spring Quarters as follows:—	EAST LONDON UNION.			WEST LONDON UNION.			CITY OF LONDON UNION.						Total for entire City.
	Saint Botolph.	Cripple-gate.	Work-houses.	North.	South.	Work-house.	S.W.	N.W.	South.	S.E.	N.E.	Work-house.	
April, May, June, 1849..	85	130	39	77	110	34	56	55	58	45	50	26	
" " " 1850..	80	90	19	74	71	27	34	39	40	43	50	22	
" " " 1851..	115	101	48	92	79	21	44	38	75	70	56	28	
" " " 1852..	110	131	38	70	121	31	47	51	41	47	59	28	
" " " 1853..	129	131	51	89	90	46	45	47	59	50	47	33	
<b>Total of Five Seasons..</b>	<b>519</b>	<b>583</b>	<b>195</b>	<b>402</b>	<b>471</b>	<b>159</b>	<b>226</b>	<b>230</b>	<b>273</b>	<b>255</b>	<b>262</b>	<b>137</b>	<b>3712</b>



No. XIII.—Comparative Mortality in Different Seasons of the Year.

	SUMMER QUARTERS.										Totals for entire City.					
	EAST LONDON UNION.					WEST LONDON UNION.						CITY OF LONDON UNION.				
	Saint Botolph.	Cripple-gate.	Work-houses.	North.	South.	Work-house.	S.W.	N.W.	South.	S.E.		N.E.	Work-house.	Totals		
DEATHS in five Summer Quarters as follows :—																
July, Aug., Sept., 1849..	171	199	73	148	295	33	145	77	86	77	73	18	1395			
" " " 1850..	102	93	26	74	65	18	39	39	43	31	43	22	595			
" " " 1851..	123	105	38	76	73	11	40	39	53	36	42	27	663			
" " " 1852..	160	116	26	74	77	31	44	32	49	26	54	28	717			
" " " 1853..	126	151	20	66	52	31	39	41	42	32	48	22	670			
Total of Five Seasons..	682	664	183	438	562	124	307	228	273	202	260	117	4040			

No. XII.—Comparative Mortality in Different Seasons of the Year.



